

Date: Wed, 8 Jun 94 04:30:32 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V94 #155
To: Ham-Homebrew

Ham-Homebrew Digest Wed, 8 Jun 94 Volume 94 : Issue 155

Today's Topics:

900mhz transciever
CORRECTION! RS 49MHz to 6m
PCB via Laserjet
What's the DAC for?

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 8 Jun 94 03:47:00 GMT
From: dog.ee.lbl.gov!agate!headwall.Stanford.EDU!w6yx.stanford.edu!
stevem@ucbvax.berkeley.edu
Subject: 900mhz transciever
To: ham-homebrew@ucsd.edu

In article <2t12r5\$gpm@usenet.INS.CWRU.Edu> au440@cleveland.Freenet.Edu (Kieran Donahue) writes:

>
> How would I build a snythesized 900 mhz transciever? I
> want to build a separate unit for contesting. Are there any
> good recipies that someone could recommend or acquire for me?
>--
>Kieran D. au440

I think the mose economical thing to do would be to make a transverter
rather than a complete transceiver. You could use an HF or 2M all mode
rig as the IF.

I seem to recall, back when we first got use of the band, several designs appearing in places like QEX and the now defunct Ham Radio Magazine.

Steve Muther WF6R

Date: 7 Jun 94 22:22:19 GMT
From: dog.ee.lbl.gov!ihnp4.ucsd.edu!news.service.uci.edu!ttinews!avatar!
sorgatz@ucbvax.berkeley.edu
Subject: CORRECTION! RS 49MHz to 6m
To: ham-homebrew@ucsd.edu

Please note that the existing xtal in the RS 5ch 49MHz unit is 10.24 MHz! Substitute a 10.4 MHz xtal (its a common xtal used in many vdt and vtac circuits - \$1 at most surplus type places.) in it's place and your little ht will have 5 channels starting from 50.610 MHz with 15 KHz spacing.

You will have to tune the cans and the final for peak output, but the adjustment is very slight. You might also be able to push the freq a little with a different freq xtal, we tried a 10.7 and found it to be beyond the tuning range of the cans. So try a 10.45 or 10.5, maybe even a 10.6 MHz would work.

The easist way to do this mod is to do a pair and tune them together, this is what KB6LUZ, Dennis and I did on our initial pair. Thereafter we used my FT726r and his Yaesu 6m rig to do the tuneups. A longer telescopic antenna helps the range, we picked a pair of 4 section antennas at RS. These stick out from the top of the ht about 3-4" but are the same base diameter as the ones supplied with the ht for 49 MHz use. I think they are 26" as opposed to 18" long. Whatever antenna you decide to use, tune the final to it using a field strength meter to guide you.

73! Sorry for the mixup on the xtal freq!

-Avatar-> (aka: Erik K. Sorgatz) KB6LUY +-----+
TTI(es@soldev.tti.com)or: sorgatz@avatar.tti.com *Government produces NOTHING!*
3100 Ocean Park Blvd. Santa Monica, CA 90405 +-----+
(OPINIONS EXPRESSED DO NOT REFLECT THE VIEWS OF CITICORP OR ITS MANAGEMENT!)

Date: 8 Jun 94 02:55:35 GMT
From: dog.ee.lbl.gov!agate!msuinfo!harbinger.cc.monash.edu.au!aggedor.rmit.EDU.AU!

usenet@ucbvax.berkeley.edu
Subject: PCB via Laserjet
To: ham-homebrew@ucsd.edu

In Article <2t0hf2INN6qd@sepia.wv.tek.com>
edbu@sepia.wv.tek.com (Ed Burrress) writes:

Fascinating notes about making PCB's from a Laser Printer image deleted

I am pleased to see that you are using a real computer for your PCB
layout work! ;-)

I prefer Macs as well, and am wondering if you know of a library of
MacDraw graphics for IC pads etc.?

Regards David

Date: 7 Jun 1994 21:10:01 GMT
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!chpc.utexas.edu!news.utdallas.edu!
corpgate!bnrgate!bmerha64.bnr.ca!bnr!kirkland@network.ucsd.edu
Subject: What's the DAC for?
To: ham-homebrew@ucsd.edu

Date: (null)
From: (null)
Bill Kirkland

Date: (null)
From: (null)
A frequently asked question is this: The output of the NCO is
a digitized sinewave and the most significant bit (MSB) is the
sign of the signal. So can't I just use this signal when I only
want to generate a squarewave...

The answer is yeas and no: it all depends on the jitter that can
be tolerated on the square waver. Where does this jitter come from?
To answer this it is necessary to recall that the output of the NCO
is a sampled data signal, not a continuous time signal, since the output
of the NCO can only change at the edges of the clock. The MSB is

a replica of what would be obtained at the output of the clipper if the low pass filter were omitted. When the output frequency f_o is an even submultiple of the clock frequency ... (no problem)

...

However, consider the case where the $f_o/f_{clk} = 1/7.5$. This is shown in Fig. 3 (sorry can't draw this in).

In this case the sinewave starts at zero degrees and the first rising edge of the MSB coincides with this zero crossing of the sinewave. The second zero crossing occurs after 3.75 clock cycles and the MSB changes after 4 cycles; the third zero crossing occurs after 7.5 clock cycles and the MSB changes after 8 cycles; the fourth zero crossing occurs after 11.25 clock cycles and the MSB changes after 12 cycles; the fifth zero crossing occurs after 15 clock cycles and the MSB will change simultaneously. What has happened is that the MSB of the NCO has generated two cycles of a rectangular wave, the first with a period of 8 clock cycles and the second with a period of 7 cycles. This process repeats, so that the mean period of the signal is correct, 7.5 clock cycles, but with a jitter of plus or minus a half cycle since the periods are actually alternately 8 and 7 cycles.

...

when the ratio between f_o and f_{clk} is more complex is that the statistics of the jitter change; the peak-to-peak value of the jitter will always be one clock cycle, but the RMS value will vary and so will the spectrum of the signal.

...

The reason why a jitter-free signal is obtained when the sinewave from the DAC is clipped after filtering is that the aliases of the signal are removed before the harmonics are generated, and consequently the aliases of the harmonics are never generated in the first place.

End of Ham-Homebrew Digest V94 #155
